



TRANSISTOR GENERATOR INDUCTION HEATING EQUIPMENT



SiC MOSFET & IGBT Module

HISEN ENTERPRISES CO., LTD

COMPANY PROFILE

Hisen Enterprises Co., Ltd. was established in Taiwan since 1967, specializing in high frequency machines. As a pioneer in this field, we continued to maintain our leadership through continuous developments, innovations and transfer of the latest technology from our partners in France and Japan. Our company gained ISO 9001 recognition in 1995, the only company in this field to get such recognition at that time ; and 14001 recognition in 1997.

Our Solid State Generator was a result of a technology transfer from Japan , resulting in a much welcomed equipment.

We have around 60% of the market in Taiwan and export sales has reached the four continents - Europe, USA, Asia, and African continents.

The Solid State Generator is proven to save power by around 30% compared to the vacuum tube type generators. Its compact design is only about one fourth the size of the vacuum tube type machine.

These two factors bear a great weight for customers choosing solid state machines.

Comparing our machine with other brands, our machine gives :

- ◆ Power savings
- ◆ High speed and high quality heating performance
- ◆ Homogeneous quality
- ◆ High productivity
- ◆ Minimum maintenance

We assure our customers high quality and good after sales service.

Contact us for more information.

HISTORY

- 1967 HISEN incorporated in June**
- 1975 Technical cooperation with FUJI Dempa Koki, Japan on H.F. Plastic welding machine & preheater**
- 1978 Computerization of operations**
- 1984 Started using Computer Aided Design and testing of machine system**
- 1995 Honored with an award for excellence by Medium-Small Business association in achieving overall improvement in management system and company operations by using computerization**
- 1996 Obtained ISO 9001 Quality System Certificate from DNV**
- 1997 Obtained ISO 14001 Quality System Certificate from DNV**
- 1998 Transferred technology from Japan on the manufacture of Medium and High Frequency Transistor Generators, resulting in a big leap in the output of our machines to 2000KW.**
- 2006 Exhibited at the Tube Duesseldorf 2006 for the first time, becoming the first company in Asia making HF Induction machines joining an international exhibition**
- 2009 Renewed Technology Transfer contract with Neturen Japan for another 10 years.**
- 2017 Celebrated company's 50th anniversary.**
- 2019 Renewed Technology Transfer contract with Neturen Japan for another 10 years.**
- 2020 Transistors are fully upgraded to SiC Mosfet**

HIGH FREQUENCY INDUCTION HEATING GENERATOR



MOSFET



MOSFET



IGBT

COOLING SYSTEMS



WITH PAPER FILTER



FOR HF SYSTEM



FOR QUENCHING SYSTEM

HIGH FREQUENCY INDUCTION HEATING GENERATOR

A New Breakthrough in Technology, Highly-Efficient, Compact, Transistor Inverter

Frequency and output

The Generator accommodates a frequency range of 1kHz to 450 kHz at an output range of 2kw to 2000kw. In case of short time heating, output power can be increased.

Energy savings

Because transistors are used instead of vacuum tubes, input power can be reduced by about 30% and cooling water can be saved by 50%.

Compact design

The comprehensive solid-state and low voltage design makes the unit compact in size to reduce the required installation space to one-fourth the space required by conventional vacuum-tube oscillator models.

Easy maintenance and inspection

Transistors, printed circuit boards and other components are all placed at the front for easy maintenance access.

Cooling water circulation system(option) helps to solve the water problems.

Dependable protective circuits

The protective circuits ensure safe inverter operation in case of touching coils, no-load operations, over-load operations and other operation errors.

Tripping operations:

- Door interlock • Cooling water flow
- Water inlet/outlet temp. • IAC trip
- IDC trip • Phase fault • LOW.F trip • HI.F trip
- Tank fault(coil short) • Tank cap. V trip

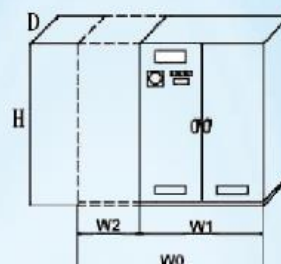
MOSFET~ Specifications :

Output	Output Capacity(kw)	100	150	200	250	300	350	400	500	600	800	1000	1200	1400	1600	1800	2000	
	Frequency (kHz)	40-400kHz																
In put	Voltage(V)	3Ø,220/380/415/440V±10%/50/60Hz																
	Capacity (kVA)	Output(kW)÷0.9 =Input(kW) Output(kW)×1.4 =Input(kVA)																
Cooling Water	Common specifications	Water pressure 2.5~3.5kgf/cm2 Water temperature 25-40℃																
	Water flow (L/m)	120	200	260	350			400	450		750		900	1000		1100	1200	
	Water inlet/ outlet dia	40A	50A	40A*2		40A*1,50A*1			50A*2			65A*2		50A*2,80A*1		50A*2,65A*2		
External dimensions	Hight H(mm)	1450	1650	1650	2050													
	Inverter Wl(mm)	700	700	700	1150	1150	2300		3300		4300		5400	6400	8000		9000	
	Cooling system W2(mm)				500			600						1000				
	Total Width W0(mm)	700	700	700	1650	1650	2800		3900		4900		6000	7000	9000		10000	
	Depth D(mm)	500	600	600	1043	1043	1200									1500		
	Mass(kg)	1700	1900	2000	2200	2800	3000	3300	3400	3600	3800	4000	4200	4400	4600	4800	5200	

IGBT~ Specifications :

Output	Output capacity(kW)	100	200	300	400	500	600	800	1000	1200	1600	2000
	Frequency(kHz)	1~50KHZ										
Input	Voltage(V)	3Ø, 220/380/415/440V±10% , 50/60Hz										
	Capacity(kVA)	Output(kW)÷ 0.9=Input(kW) Output(kW)X 1.2=Input(kVA)										
Cooling Water	Common specifications	Water pressure 2.5~3.5kgf/cm ² Water temperature 25~40℃										
	Water flow(L/m)	30/40	60/80	85/110	100/130	120/160	140/190	230/300	275/350	340/440	500/650	520/680
	Water inlet/outlet dia	20A		25A	40A	40A/50A		65A	65A*2	80A*2		
External Dimensions	Height H(mm)	1950		1950		1950	2350				2550	
	Inverter W1(mm)	800		950	1300	1600	1400	1700	2500	3500	5000	
	Cooling system W2(mm)	500		600		700					900	
	Total Width W0(mm)	1300		1550	1900	2300	2100	2400	3200	4200	5900	
	Depth D(mm)	800	1000	1300		1200	1500	1200				
	Mass(kg)	1200	1400	1700	1900	2400	3000	2600	3200	3800	6000	7200

- Input capacity includes KVA for cooling water system.
- Feel free to contact us for information on inverters with other output capacities and frequencies not indicated in the above table.
- For product improvement, specifications and external appearance are subject to change without notice.



VERTICAL QUENCHING MACHINE

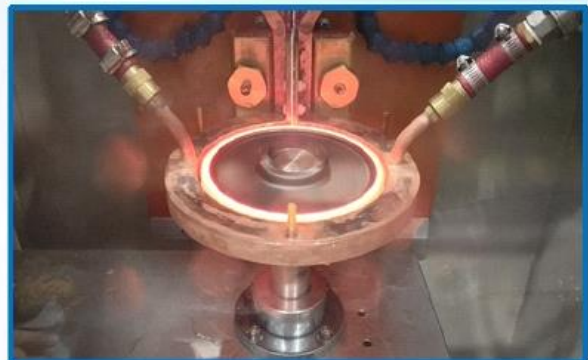
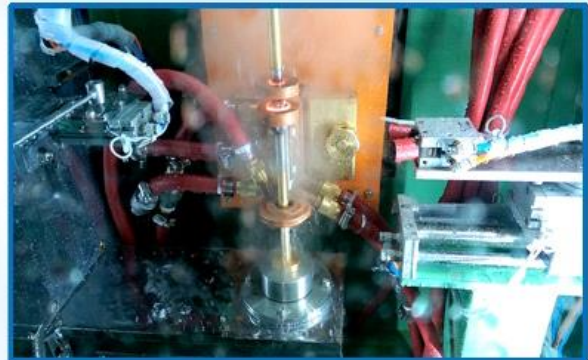
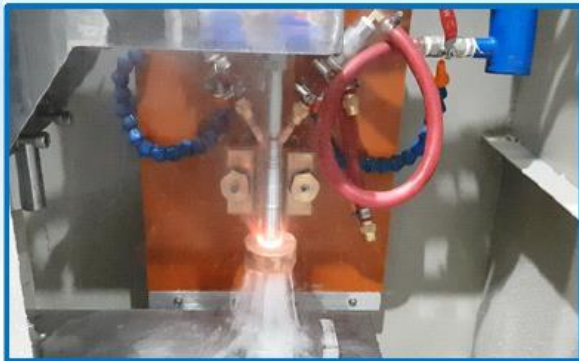
SINGLE / DUAL STATIONS

Product Name : Vertical Quenching Machine	
Specifications:	(1) Model : Vertical
	(2) Driven by Servo Motor
	(3) Stroke : 300 ~ 1000 mm
	(4) Speed : 20 ~ 5000 mm/minute
	(5) Center Adjustment by Motor
	(6) Center Opening Distance : 300 ~ 1000 mm
	(7) Rotation Speed : 50 ~ 200 rpm
	(8) Center is designed based on the work-piece.
	(9) Industrial computer or human interface
	(10) CT Box can be electrically adjusted by 50mm horizontally.
	(11) With Automatic Lubrication System
	(12) Servo Controlled, with Output Adjustment
	(13) With Water Tank



VERTICAL SCANNER SERIES

Suitable for shafts, gears, vehicle
and motorcycle parts



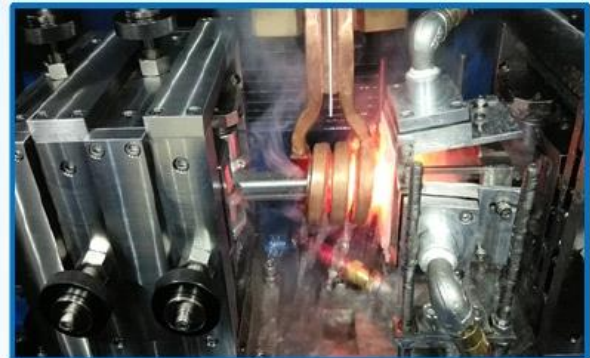
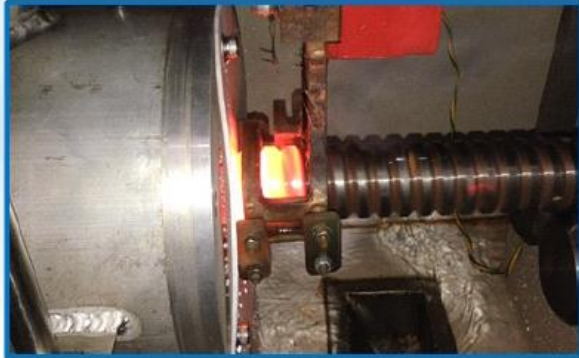
HORIZONTAL QUENCHING MACHINE

Product Name : Horizontal Quenching Machine	
Specifications:	(1) Model : Horizontal
	(2) Driven by Servo Motor
	(3) Stroke : 300 ~ 7000 mm
	(4) Speed : 50 ~ 10000 mm/minute
	(5) Rotation : Inverter Motor Driven, rotation speed:100~250rpm
	(6) Rotating shaft : 60mm x 2pc, work piece diameter : 8~60mm x 1pc
	(7) Work piece length : 300~7000
	(8) Industrial computer or human interface
	(9) C.T. can be adjusted both horizontally and vertically
	(10) Straightening rods can be installed to the front and back of COIL
	(11) Water tank with water-outflow hole : 1-1/2" x 2pc



HORIZONTAL SCANNER SERIES

Suitable for ball screws, linear slides, screws, tools, long shafts, etc.



ROTARY QUENCHING MACHINE

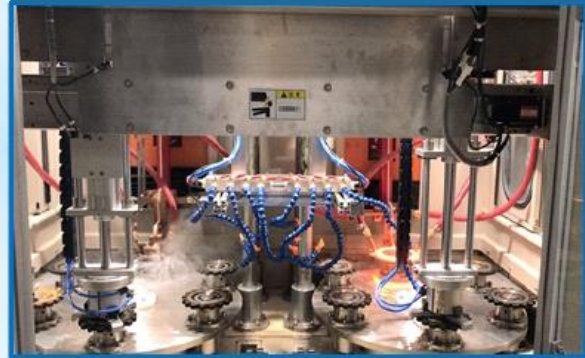
SINGLE / DUAL STATIONS

Product Name : Rotary Quenching Machine	
Specifications:	(1) Model : Rotary
	(2) Driven by Servo Motor
	(3) Stroke : 100 ~ 300 mm
	(4) Speed : 10 ~ 3000 mm/minute
	(5) Rotary Table : with 4, 6, or 8 stations. Every station is equipped with 1 or 2 rotation device.
	(6) Rotation Device : Can be fixed or rotational, with speed 50 ~ 150 rpm.
	(7) Industrial computer or human interface
	(8) CT Box can be electrically adjusted by 50mm horizontally.
	(9) With Automatic Lubrication System
	(10) With Water Tank



ROTARY TABLE SCANNER SERIES

Suitable for gear, portion heating,
vehicle and motorcycle parts



CAR CRASH BEAM AUTOMATIC INDUCTION HEATING EQUIPMENT



SHOCK ABSORBER AXIS INDUCTION HEATING EQUIPMENT



AUTOMATIC INDUCTION HEATING EQUIPMENT FOR SPINDLES, SHAFTS, ETC.



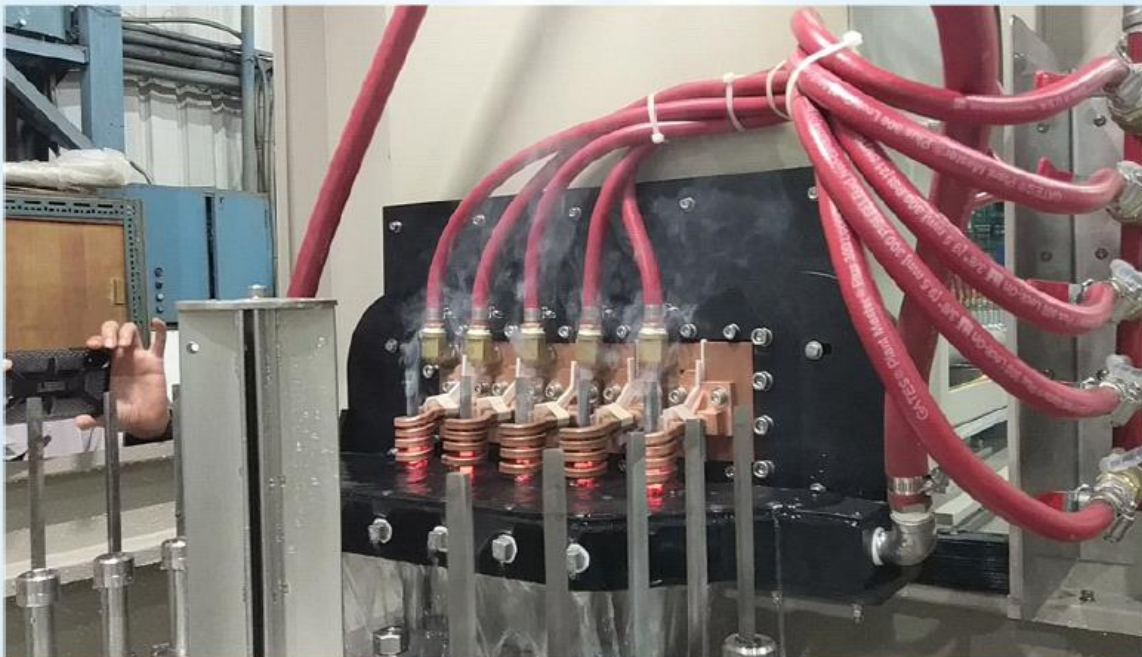
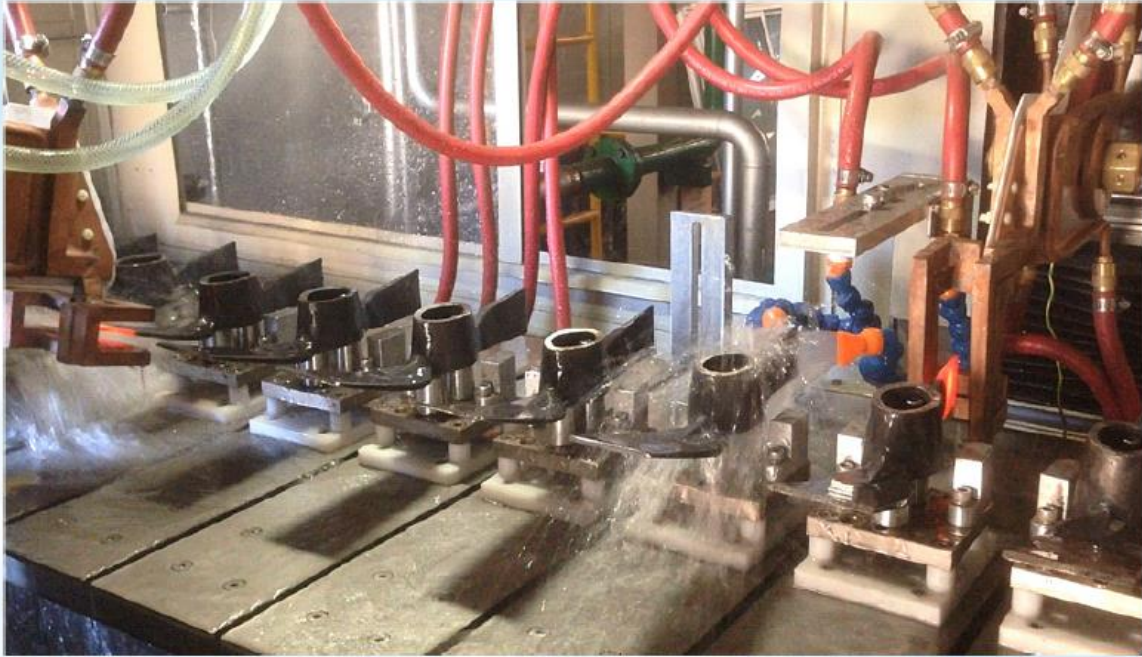
DOUBLE WORK STATIONS AUTOMATIC INDUCTION HEATING EQUIPMENT FOR GEARS



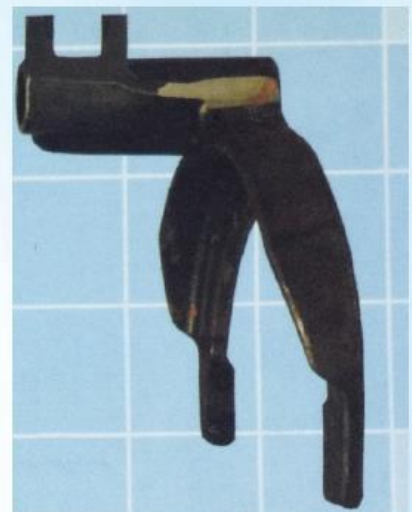
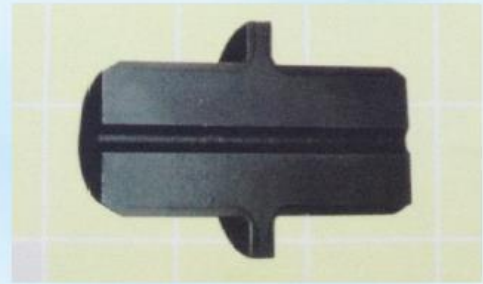
AUTOMATIC INDUCTION HEATING EQUIPMENT FOR SCREWS



HAND TOOLS INDUCTION HEATING EQUIPMENT



HEATING COIL 、 IMPEDER CORE & CASE FOR VARIOUS KINDS OF APPLICATIONS



PRODUCT QUESTIONNAIRE

Item	Details of Inquiry					
1.	Shape of product	Shaft ☐	Gear ☐	Plate ☐	Inside hole ☐	Others ☐
2.	Material Specifications	S45C-55C ☐	SCM ☐	SUS ☐	SKD ☐	Others ☐
3.	Dimensions of product	Smallest OD(mm) : Longest length(mm) : Depth of inside hole(mm) : Width of flat surface(mm) :		Biggest OD(mm) : Shortest length(mm) : OD of inside hole(mm) : Length of flat surface(mm) :		
4.	Heating requirements	Hardness range(mm) :		Depth range(mm) :		
5.	Operation requirements	Vertical ☐	Rotary ☐	Horizontal ☐		
6.	Speed requirement				Monthly production :	
7.	Stroke(mm)					
8.	Others					



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ISO9001 & ISO14001